



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/611,866	07/03/2003	Chikako Sekiya	239820US2	3854

22850 7590 07/01/2005

OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.
1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER

CROWELL, ANNA M

ART UNIT	PAPER NUMBER
----------	--------------

1763

DATE MAILED: 07/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/611,866

Applicant(s)

SEKIYA, CHIKAKO

Examiner

Michelle Crowell

Art Unit

1763

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 May 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Objections

Claims 2 and 6 are objected to because of the following informalities: In line 25 of claim 2, after “introduced”, a comma is needed and likewise, in line 16 of claim 6, after “introduced”, a comma is needed. Appropriate correction is required.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 2 and 4 are rejected under 35 U.S.C. 102(b) as being anticipated by Okawa et al. (J.P. 2000349070).

It should be noted that U.S. Patent 6,758,941 will be used as the English translation for the Okawa et al. reference.

Referring to Figures 1 and 3 and column 3, line 53-column 6, line 26, Okawa et al. discloses an upper electrode cover for a plasma treatment apparatus comprising: a vacuum vessel 1 that houses an article W to be treated and into which a treatment gas is introduced (col. 3, lines 53-57); a lower electrode 3 that is provided inside the vacuum vessel and onto which is placed the article to be treated (col. 3, lines 53-57); an upper electrode main body 2A that is provided above the lower electrode to form a plasma region in the vacuum vessel, the upper

Art Unit: 1763

electrode main body having formed therein an opening through which passes light for detecting an extent of progress of plasma treatment of the article to be treated in the plasma region (col. 3, lines 53-67, col. 4, lines 39-42); an upper electrode cover 2B has formed therein a hole 2F at a location corresponding to the opening of the upper electrode main body (col. 4, lines 43-45, col. 4, line 61-col. 5, line 3). It should be noted that with respect to the window member is to be fitted in the hole, claim 2 fails to require a window member it simply requires a hole in which a window member can fit and the hole of Okawa et al. is capable of receiving a window member.

With respect to claim 4, the hole 2F of Okawa et al. opens into the plasma region (Fig. 1).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Okawa et al. (J.P. 2000349070).

Okawa et al. fails to teach the hole of the upper electrode cover has a lower portion having a reduced diameter and an upper portion having an increased diameter. However, Okawa et al. teaches a hole 2F, and the shape of the hole of the upper electrode cover is considered a matter of choice which a person of ordinary skill in the art would have found obvious absent persuasive evidence that the particular shape of the hole of the upper electrode cover was significant (In re Dailey, 357 F.2d 669, 149 USPQ 47 (CCPA 1966)).

Art Unit: 1763

5. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Okawa et al. (J.P. 2000349070) in view of Ueda et al. (J.P. 08107102).

The teachings of Okawa et al. have been discussed above.

Okawa et al. fails to teach that the upper electrode cover is made of quartz.

Referring to the abstract, Ueda et al. teaches that it is conventionally known in the art for the upper electrode cover 14 to be made of quartz in order to reduce particle contamination. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention for the upper electrode cover of Okawa et al. to be made of quartz as taught by Ueda et al. in order to reduce particle contamination.

6. Claims 1, 6, and 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okawa et al. (J.P. 2000349070) in view of Herchen et al. (U.S. 6,264,852).

Referring to Figures 1 and 3 and column 3, line 53-column 6, line 26, Okawa et al. discloses a plasma treatment apparatus comprising: a vacuum vessel 1 that houses an article W to be treated and into which a treatment gas is introduced (col. 3, lines 53-57); a lower electrode 3 that is provided inside the vacuum vessel and onto which is placed the article to be treated (col. 3, lines 53-57); an upper electrode main body 2A that is provided above the lower electrode to form a plasma region in the vacuum vessel, the upper electrode main body having formed therein an opening through which passes light for detecting an extent of progress of plasma treatment of the article to be treated in the plasma region (col. 3, lines 53-67, col. 4, lines 39-42); an upper electrode cover 2B that is joined to a lower surface of the upper electrode main body, the upper electrode cover having formed therein a hole at a location corresponding to the opening of the upper electrode main body (col. 4, lines 43-45); and a window member 4 (col. 3, lines 61-62).

Art Unit: 1763

Okawa et al. fails to teach that the window member is fitted in the hole of the cover.

Referring to Figures 2, column 8, lines 46-67, Herchen et al. teaches it is conventionally known in the art for a window member 170 to be fitted in a cover 130 in order to effectively monitor the substrate's progress (col. 7, lines 45-63). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention for the window member to be fitted in the upper electrode cover of Okawa et al. as taught by Herchen et al. in order effectively monitor the substrate's progress.

With respect to claim 6, referring to Figures 1 and 3 and column 3, line 53-column 6, line 26, Okawa et al. discloses an upper electrode cover member for a plasma treatment apparatus comprising: a vacuum vessel 1 that houses an article W to be treated and into which a treatment gas is introduced (col. 3, lines 53-57); a lower electrode 3 that is provided inside the vacuum vessel and onto which is placed the article to be treated (col. 3, lines 53-57); an upper electrode main body 2A that is provided above the lower electrode to form a plasma region in the vacuum vessel, the upper electrode main body having formed therein an opening through which passes light for detecting an extent of progress of plasma treatment of the article to be treated in the plasma region (col. 3, lines 53-67, col. 4, lines 39-42); and an upper electrode cover 2B that is joined to a lower surface of the upper electrode main body; wherein the upper electrode cover window member 4 comprises a transparent member 4C (col. 5, lines 16-22).

Okawa et al. fails to teach that the upper electrode cover window member has shape such that the window member is fitted in the hole of the cover.

Referring to Figures 2, column 8, lines 46-67, Herchen et al. teaches it is conventionally known in the art for a upper electrode cover window member 170 to have a shape to be fitted in a

Art Unit: 1763

cover 130 in order to effectively monitor the substrate's progress (col. 7, lines 45-63). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention for a upper electrode cover window member to have a shape to be fitted in the upper electrode cover of Okawa et al. as taught by Herchen et al. in order effectively monitor the substrate's progress.

With respect to claim 8, regarding the shape of the hole and the upper electrode cover window member, referring to column 8, lines 46-50, Herchen et al. teaches the shape of the hole and the upper electrode cover window member can take any shape in order to maximize the portion of the window through which a nearly vertical light beam can pass through the window. Thus, it would have been obvious to one of ordinary skill at the time of the invention for the hole and the upper electrode cover window member of Okawa et al. in view of Herchen et al. to have the claimed 7 and 8 shape in order to maximize the portion of the window through which a nearly vertical light beam can pass through the window. Additionally, the shape of the hole and the upper electrode cover window member is considered a matter of choice which a person of ordinary skill in the art would have found obvious absent persuasive evidence that the particular the shape of the hole and the upper electrode cover window member was significant (In re Dailey, 357 F.2d 669, 149 USPQ 47 (CCPA 1966)).

With respect to claim 9, the upper electrode cover window member 4 of Okawa et al. is made of quartz 4C (col. 5, lines 16-22).

7. Claims 7 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okawa et al. (J.P. 2000349070) in view of Herchen et al. (U.S. 6,264,852) as applied to claims 1, 6, and 8-9 above, and further in view of Howald et al. (U.S. 6,074,516).

The teachings of Okawa et al. in view of Herchen et al. have been discussed above.

Okawa et al. in view of Herchen et al. fails to teach the hole has a lower portion having a reduced diameter and an upper portion having an increased diameter, and the upper electrode cover window member has a lower portion having a reduced diameter and an upper portion having an increased diameter that can be fitted in the lower portion and upper portion of the hole respectively.

Referring to Figure 4 and column 6, lines 51-59, Howald et al. teaches it is known for the hole to have a lower portion having a reduced diameter and an upper portion having an increased diameter, and the upper electrode cover window member 302 has a lower portion having a reduced diameter and an upper portion having an increased diameter that can be fitted in the lower portion and upper portion of the hole respectively in order to prevent a vacuum leak around the upper electrode cover window member. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention for the hole and upper electrode cover window member of Okawa et al. in view of Herchen et al. to have a the hole has a lower portion 35 having a reduced diameter and an upper portion having an increased diameter, and the upper electrode cover window member has a lower portion having a reduced diameter and an upper portion having an increased diameter that can be fitted in the lower portion and upper portion of the hole respectively as taught by Howald et al. in order to prevent a vacuum leak around the upper electrode cover window member. Additionally, the shape of the hole and the upper electrode cover window member is considered a matter of choice which a person of ordinary skill in the art would have found obvious absent persuasive evidence that the particular the shape

Art Unit: 1763

of the hole and the upper electrode cover window member was significant (In re Dailey, 357 F.2d 669, 149 USPQ 47 (CCPA 1966)).

Okawa et al. in view of Herchen et al. fails to teach the upper electrode cover window member is made of sapphire.

Referring to column 5, lines 17-30, Howald et al. teaches the upper electrode cover window member 302 is made of sapphire since it is a known transparent material used for plasma monitoring and sapphire is highly resistant to plasma. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention for the material of the upper electrode cover window member of Okawa et al. in view of Herchen et al. to be made of sapphire as taught by Howald et al. since it is a known transparent material used for plasma monitoring and sapphire is highly resistant to plasma.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Shimizu '372, Saito et al. '253, Tanaka '188, and Sato '102 teach window members.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michelle Crowell whose telephone number is (571) 272-1432. The examiner can normally be reached on M-F (9:30 -6:00).

Art Unit: 1763

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on (571) 272-1435. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AMC *amc*
06-24-05

p.2
PARVIZ HASSANZADEH
SUPERVISORY PATENT EXAMINER